National Aeronautics and Space Administration

Fleet Alternative Fuel Vehicle Program Fleet Report for FY 2011

February 15, 2012

This National Aeronautics and Space Administration (NASA) Fleet Alternative Fuel Vehicle (AFV) Report for Fiscal Year (FY) 2011 presents the Agency's data on the number of AFVs acquired in FY 2011 and its planned and projected acquisition for FY 2012, FY 2013 and FY 2014. This report has been developed in accordance with the Energy Policy Act of 1992 (EPAct) (42 U.S.C. 13211-13219) as amended by the Energy Conservation Reauthorization Act of 1998 (Public Law 105-388) (ECRA), Energy Policy Act of 2005 (EPAct), and Executive Order (E.O.) 13423 (signed by the President in January 2007) and E.O. 13514 (signed by the President in October 2009).

Legislative Requirements

EPAct requires that 75 percent of all covered light-duty vehicles acquired for Federal fleets in FY 1999 and beyond must be AFVs (where the fleets have 20 or more vehicles, are capable of being centrally fueled, and are operated in a Metropolitan Statistical Area (MSA) with a population of more than 250,000 based on the 1980 census). Certain emergency, law enforcement, and national defense vehicles are exempt from this requirement. In January 2007, President Bush signed E.O. 13423 which strengthened the mandate and requires agencies with 20 or more vehicles in the United States to decrease petroleum consumption by 2% per year relative to their fiscal year (FY) 2005 baseline through FY 2015. E.O. 13423 also requires agencies to increase alternative fuel use by 10% per year relative to the previous year. In October 2009, President Obama signed E.O. 13514, which extends the requirement for reduction of petroleum use by 2% annually through FY 2020.

NASA Approach to Compliance with EPAct, E.O. 13423 and E.O. 13514

To achieve compliance with the legislative mandates of EPAct, E.O. 13423 and E.O. 13514, NASA has developed an aggressive compliance strategy including the acquisition of 75 percent of new, covered light-duty vehicles as AFVs, and use alternative fuel in these vehicles a majority of the time. NASA will also continue to acquire light-duty vehicles with higher fuel efficiency, and further reduce petroleum consumption by using biodiesel fuel in most diesel vehicles where available. NASA recognizes that AFV fueling infrastructure is extremely limited in most areas of the country. As such, NASA has or intends to develop AFV fueling infrastructure at those NASA Centers where it is not readily commercially available. Additionally, each NASA Center now reports on their institutional compliance with EPAct, E.O. 13423 and E.O. 13514.

NASA Fleet Compliance for FY 2011

NASA acquired 361 light-duty vehicles (LDVs) during FY 2011, of which 179 were considered EPAct covered acquisitions. Of the total 299 LDVs acquired, 253 were AFVs. NASA also gained 111 credits for biodiesel fuel use and for acquiring dedicated light, medium, and heavy-duty AFVs, for a total of 393 credits, thereby exceeding EPAct requirements of 75 percent by 195 percentage points.

Summary of NASA's FY 2011 AFV Acquisitions

A number of vehicles that were leased and purchased by NASA were not "covered" vehicles. Of the total of 245 light-duty vehicles acquired in FY 2011, the following were not counted for compliance:

- 3 were exempt as "non-covered vehicle(s)"; Low Speed Electric Vehicle (LSEV) inventory data (including acquisition) is recorded within FAST, but LSEVs do not meet the definition of vehicle per E.O.s, therefore the acquisition of such a vehicle does count towards the EPAct compliance percentage.
- 4 were exempt as "non-MSA operation; vehicles housed within a fleet assigned within an MSA, but the vehicles performs 51% (or more) of the functional duties outside the MSA.
- 54 were exempt due to geographic assignment; the vehicles are housed outside of a MSA.
- 59 were exempt as Law Enforcement vehicles.

NASA's Fleet AFV Acquisitions for FY 2012, FY 2013 and FY 2014

Below is the detailed information on planned and projected vehicle acquisitions for NASA in FY 2012, 2013 and 2014.

2011 AFV Report: Planned Data (FY2012)

1. Planned Light-Duty Vehicle Acquisitions and Exemptions				
	Acquisitions			
	Leased	Purchased	Total	
Total Light-Duty Vehicle Acquisitions	368	4	372	
Fleet Exemptions: Fleet Size	0	0	0	
Fleet Exemptions: Foreign	0	4	4	
Fleet Exemptions: Geographic	128	0	128	
Fleet Exemptions: Non-MSA Operation	3	0	3	
Vehicle Exemptions: LE Vehicle	20	0	20	
Vehicle Exemptions: Non-covered Vehicle	0	0	0	
Vehicle Exemptions: Non-MSA Operation	55	0	55	
Total EPAct-Covered Vehicles	162	0	162	

2. Planned Alternative Fuel Vehicle Acquisition Detail						
Vehicle Type	Fuel	LE	Acquisitions			EPAct Credits
			Lease	Purchase	Total	
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	77	0	77	77
Sedan/St Wgn Compact	E85 FF	Yes	1	0	1	0
Sedan/St Wgn Compact	GAS HY[3]	No	5	0	5	5
Sedan/St Wgn Compact	GAS HY[3]	Yes	2	0	2	0
Sedan/St Wgn Midsize	E85 FF	No	38	0	38	38
Sedan/St Wgn Midsize	E85 FF	Yes	8	0	8	0
Sedan/St Wgn Subcompact	CNG BI	No	4	0	4	4
Sedan/St Wgn Subcompact	CNG DE	No	1	0	1	1
Sedan/St Wgn Subcompact	GAS HY[3]	Yes	1	0	1	0
LD Minivan 4x2 (Cargo)	E85 FF	No	18	0	18	18
LD Minivan 4x2 (Passenger)	E85 FF	No	55	0	55	55
LD Minivan 4x2 (Passenger)	E85 FF	Yes	2	0	2	0
LD Pickup 4x2	CNG BI	No	9	0	9	9
LD Pickup 4x2	CNG DE	No	2	0	2	2
LD Pickup 4x2	E85 FF	No	66	0	66	66
LD Pickup 4x2	LPG BI	No	2	0	2	2
LD SUV 4x2	E85 FF	No	6	0	6	6
LD SUV 4x2	E85 FF	Yes	3	0	3	0
LD Van 4x2 (Cargo)	E85 FF	No	6	0	6	6
LD Van 4x2 (Passenger)	E85 FF	No	12	0	12	12
LD Pickup 4x4	CNG BI	No	1	0	1	1
LD Pickup 4x4	E85 FF	No	6	0	6	6
LD SUV 4x4	E85 FF	No	12	0	12	12
LD SUV 4x4	GAS HY[3]	No	2	0	2	2
LD SUV 4x4	GAS HY[3]	Yes	1	0	1	0
Medium Duty Vehicles						
MD Other	E85 FF	No	14	0	14	14
MD Pickup	CNG BI	No	2	0	2	2
MD Pickup	E85 FF	No	7	0	7	7
MD Van (Cargo)	CNG BI	No	7	0	7	7
MD Van (Cargo)	CNG DE	No	1	0	1	1
MD Van (Cargo)	E85 FF	No	13	0	13	13
MD Van (Passenger)	CNG BI	No	5	0	5	5
MD Van (Passenger)	CNG DE	No	1	0	1	1

MD Van (Passenger)	E85 FF	No	7	0	7	7
MD Van (Passenger)	GAS AF	No	1	0	1	1
Totals:			398	0	398	380

3. Planned EPAct Acquisition Credits Summary	
Base AFV Acquisition Credits:	380
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	3
Dedicated Medium Duty AFV Credits:	4
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits:[4]	14
Total EPAct Credits:	401
Overall EPAct Compliance Percentage:	248 %

2011 AFV Report: Projected Data (FY2013)

1. Projected Light-Duty Vehicle Acquisitions and Exemptions				
	Acquisitions			
	Leased	Purchased	Total	
Total Light-Duty Vehicle Acquisitions	276	4	280	
Fleet Exemptions: Fleet Size	0	0	0	
Fleet Exemptions: Foreign	0	4	4	
Fleet Exemptions: Geographic	117	0	117	
Fleet Exemptions: Non-MSA Operation	3	0	3	
Vehicle Exemptions: LE Vehicle	8	0	8	
Vehicle Exemptions: Non-covered Vehicle	0	0	0	
Vehicle Exemptions: Non-MSA Operation	23	0	23	
Total EPAct-Covered Vehicles	125	0	125	

2. Projected Alternative Fuel Vehicle Acquisition Detail						
Vehicle Type	Fuel	LE	Acquisitions			EPAct Credits
			Lease	Purchase	Total	
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	19	0	19	19
Sedan/St Wgn Compact	E85 FF	Yes	1	0	1	0
Sedan/St Wgn Compact	GAS HY[3]	No	4	0	4	4
Sedan/St Wgn Compact	GAS HY[3]	Yes	2	0	2	0
Sedan/St Wgn Midsize	E85 FF	No	26	0	26	26
Sedan/St Wgn Midsize	E85 FF	Yes	1	0	1	0
Sedan/St Wgn Subcompact	CNG DE	No	16	0	16	16

LD Minivan 4x2 (Cargo)	E85 FF	No	11	0	11	11
LD Minivan 4x2 (Passenger)	E85 FF	No	63	0	63	63
LD Minivan 4x2 (Passenger)	E85 FF	Yes	1	0	1	0
LD Pickup 4x2	CNG BI	No	4	0	4	4
LD Pickup 4x2	E85 FF	No	57	0	57	57
LD SUV 4x2	E85 FF	No	11	0	11	11
LD SUV 4x2	E85 FF	Yes	1	0	1	0
LD SUV 4x2	GAS HY[3]	No	1	0	1	1
LD Van 4x2 (Cargo)	E85 FF	No	6	0	6	6
LD Van 4x2 (Passenger)	E85 FF	No	1	0	1	1
LD Pickup 4x4	CNG BI	No	1	0	1	1
LD Pickup 4x4	CNG DE	No	1	0	1	1
LD Pickup 4x4	E85 FF	No	6	0	6	6
LD SUV 4x4	E85 FF	No	8	0	8	8
LD SUV 4x4	GAS HY[3]	No	4	0	4	4
LD SUV 4x4	GAS HY[3]	Yes	1	0	1	0
Medium Duty Vehicles						
MD Other	E85 FF	No	9	0	9	9
MD Pickup	E85 FF	No	12	0	12	12
MD Van (Cargo)	E85 FF	No	19	0	19	19
MD Van (Passenger)	E85 FF	No	8	0	8	8
Totals:			294	0	294	287

3. Projected EPAct Acquisition Credits Summary	
Base AFV Acquisition Credits:	287
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	17
Dedicated Medium Duty AFV Credits:	0
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits:[4]	9
Total EPAct Credits:	313
Overall EPAct Compliance Percentage:	250 %

2011 AFV Report: Forecast Data (FY2014)

1. Forecast Light-Duty Vehicle Acquisitions and Exemptions				
	Acquisitions			
	Leased	Purchased	Total	
Total Light-Duty Vehicle Acquisitions	183	4	187	
Fleet Exemptions: Fleet Size	0	0	0	
Fleet Exemptions: Foreign	0	4	4	
Fleet Exemptions: Geographic	57	0	57	
Fleet Exemptions: Non-MSA Operation	0	0	0	
Vehicle Exemptions: LE Vehicle	13	0	13	

Vehicle Exemptions: Non-covered Vehicle	0	0	0
Vehicle Exemptions: Non-MSA Operation	9	0	9
Total EPAct-Covered Vehicles	104	0	104

2. Forecast Alternative Fuel Vehicle Acquisition Detail

Vehicle Type	Fuel	LE	Acquisitions			EPAct Credits
			Lease	Purchase	Total	
Light Duty Vehicles						
Sedan/St Wgn Compact	E85 FF	No	30	0	30	30
Sedan/St Wgn Compact	GAS HY[3]	No	8	0	8	8
Sedan/St Wgn Compact	GAS HY[3]	Yes	1	0	1	0
Sedan/St Wgn Large	E85 FF	Yes	3	0	3	0
Sedan/St Wgn Midsize	E85 FF	No	3	0	3	3
Sedan/St Wgn Midsize	E85 FF	Yes	7	0	7	0
Sedan/St Wgn Subcompact	GAS AF	No	2	0	2	2
LD Minivan 4x2 (Passenger)	E85 FF	No	31	0	31	31
LD Minivan 4x2 (Passenger)	E85 FF	Yes	1	0	1	0
LD Pickup 4x2	CNG BI	No	4	0	4	4
LD Pickup 4x2	E85 FF	No	40	0	40	40
LD SUV 4x2	E85 FF	No	4	0	4	4
LD Van 4x2 (Cargo)	E85 FF	No	15	0	15	15
LD Van 4x2 (Passenger)	E85 FF	No	18	0	18	18
LD Pickup 4x4	E85 FF	No	1	0	1	1
LD SUV 4x4	E85 FF	No	8	0	8	8
LD SUV 4x4	E85 FF	Yes	2	0	2	0
Medium Duty Vehicles						
MD Other	E85 FF	No	3	0	3	3
MD Van (Cargo)	E85 FF	No	5	0	5	5
MD Van (Passenger)	E85 FF	No	2	0	2	2
Totals:			188	0	188	174

3. Forecast EPAct Acquisition Credits Summary

Base AFV Acquisition Credits:	174
Zero Emission Vehicle (ZEV) Credits:	0
Dedicated Light Duty AFV Credits:	0
Dedicated Medium Duty AFV Credits:	0
Dedicated Heavy Duty AFV Credits:	0
Biodiesel Fuel Usage Credits:[4]	15
Total EPAct Credits:	189
Overall EPAct Compliance Percentage:	182 %

Petroleum Savings

Since it is difficult, to project petroleum savings in out years, only actual data is provided for FY 2011. E.O. 13423 established NASA baseline in FY 2005. NASA by E.O. 13423 and E.O. 13514 mandates a 2 percent reduction of petroleum use annually through FY 2020.

Covered Petroleum Consumption in GGE							
	Baseline FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Gasoline		770,847	833,580	888,044	733,068	731,890	713,484
Diesel		301,097	316,600	337,152	285,541	212,193	115,596
B20		99,860	99,209	30,766	63,969	82,890	208,837
Total	**1,277,165**	**1,171,804**	**1,249,389**	**1,255,962**	**1,082,578**	**1,026,973**	**1,037,917**
Target		1,251,621	1,226,078	1,200,535	1,174,991	1,149,448	1,123,905
Compliant		**Yes**	**No**	**No**	**Yes**	**Yes**	**Yes**

* B20 is the diesel component from covered biodiesel consumption.

Alternative Fuel Use by NASA in FY 2010.

New alternative fuel use baselines were derived from FY 2005 data. By mandate of E.O. 13423, NASA is required to increase alternative fuel use by 10 percent annually.

The majority of vehicles acquired by NASA and other federal fleets are leased from GSA. These leases include maintenance and fuel costs for the vehicles. Annual usage for the Agency is determined through the use of a GSA credit card to purchase alternative fuel. However, since product code standards are not uniform among suppliers of alternative fuels (e.g. ethanol or E-85), it is difficult for credit vendors to determine the specific fuel purchased. The exception may be natural gas, which is usually purchased at local utility refueling sites, which allows fleets to contact the utility for an accurate accounting of purchased fuel. Alternative fuel use data is approximated from proportioning GSA data and internal record keeping efforts.

Alternative Fuel Consumption in GGE							
	Baseline FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
CNG		15,760	32,052	14,850	11,912	11,900	7,479
LNG		0	0	0	0	0	0
LPG		10,661	10,237	7,264	7,664	5,521	3,380
E-85		199,239	231,789	234,683	241,273	236,665	198,374
Electric		0	0	0	0	0	2,348

M-85		0	0	0	0	0	0
B100		29,017	29,325	21,625	19,101	21,777	52,495
Hydrogen		0	0	0	0	0	0
Total	**148,723**	**254,677**	**303,403**	**278,422**	**279,950**	**275,863**	**264,076**
Target		163,595	179,954	197,950	217,745	239,519	263,471
Compliant		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

*B100 is calculated at 20% of the reported B20 and 100 percent of the reported B100 fuel used in the Section III Actual Fuel Cost/Consumption by Fuel

Summary

As detailed in this report and the attachments, NASA exceeded the AFV acquisition requirements of EPAct in FY 2011 and projects to repeat this accomplishment in FYs 2012, 2013 and 2014. In addition, NASA fleets were able to meet the goal of annual fleet petroleum consumption in FY 2011.

NASA expects a reduction in fleet size in FY 2012 as the shuttle transitions programs are projected to end, which will further reduce petroleum consumption as well as alternative fuel consumption.